

What is claimed is:

1. A culturing apparatus for culturing cellular tissues therein, comprising:

a first chamber;

5 a plural number of air-lock type inlet/outlets, being provided in said first chamber;

a second chamber for culturing the cells therein; and

10 a manipulator operating within said first chamber, through remote control or an automatic control, wherein said manipulator can access to both, at least one of said air-lock type input/outputs and said second chamber.

2. A culturing apparatus, as described in the claim 1, wherein each of said air-lock type inlet/outlets is divided into two (2) portions by two (2) pieces of doors, in which the door of one portion 15 divided communicates that portion to an inside of said first chamber, while the other portion divided communicates to an outside of said culturing apparatus.

3. A culturing apparatus, as described in the claim 2, wherein each of said plural number of air-lock type inlet/outlets has check 20 valves on a side surface portion opposing to the inside of said first chamber and on a side surface portion opposing to the outside of said culturing apparatus.

4. A culturing apparatus, as described in the claim 1, further comprising a turntable being able to hold an integrated vessel 25 within said second chamber, wherein a door is provided on a side surface or a bottom surface of said chamber, for enabling said manipulator to access to this turntable.

5. A culturing apparatus, as described in the claim 1, further comprising a supply source for supplying a medium to the integrated

vessel held within said second chamber and a controlled gas to said first chamber, and a control apparatus for controlling said manipulator.

5 6. A culturing apparatus, as described in the claim 1, further comprising control means for controlling flow, temperature or humidity of gas communicating within said first chamber.

10 7. A culturing apparatus, as described in the claim 4, wherein said turntable is rotatable in a direction of periphery thereof by an angle being equal or greater than 360 degree, and the medium within the integrated vessel is flowable or the position of the integrated vessel is changeable.

8. A culturing apparatus for culturing cellular tissues therein, comprising:

a first chamber;

15 a plural number of air-lock type inlet/outlets, being provided in said first chamber; and

20 a second chamber for culturing the cells therein, being provided in said first chamber, wherein each of said air-lock type inlet/outlets is divided into two parts by two (2) pieces of doors, and the door of one of those parts which are divided is provided to be communicate that divided part with an inside of said first chamber, while the door of the other of the parts which are divided is to be communicate with a connection electrode to an outside of the culturing apparatus.

25 9. A culturing apparatus, as described in the claim 8, wherein each of said plural number of air-lock type inlet/outlets comprises:

30 check valves, being provide on a partition wall opposing to an inside of said first chamber and a partition wall opposing to an outside of said culturing apparatus, and wherein:

pressure within an inside of said first chamber is set to be higher than that within the inside of said of air-lock type inlet/outlet and the outside of the culturing apparatus, so that when the door of said air-lock type inlet/outlet communicating 5 to the outside of the culturing apparatus is opened, an air flows directing from the inside of the culturing apparatus into the outside thereof through the check valve on the partition wall opposing to the inside of said first chamber, while the air stops when closing the door communicating to the outside of the culturing 10 apparatus; and

next under this condition, before opening the door communicating to the inside of the culturing apparatus, the air is exhausted through the check valve provided on the partition wall opposing to the outside of the culturing apparatus, and 15 thereafter the door communicating to the outside of the culturing apparatus is opened.